

Remarks

The present application is a continuation of application Serial No. 08/904,855, filed on August 1, 1997. The specification has been amended to reflect such a priority claim. It has also been amended to correct typographical errors. Marked-up copies of pages 1, 13, 20 and 31 of the specification reflecting the amendments are enclosed. In addition, Figs. 14, 16 and 18 have been amended to correct typographical errors. Accordingly, marked-up copies of these figures with corrections in red are enclosed, along with a Letter to the Official Draftsperson.

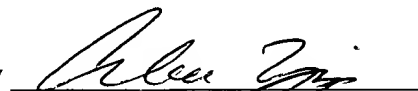
Applicant has cancelled claims 1-20. Claims 21-58 have been added which are drawn to various aspects of the invention. It is respectfully submitted that the claims, as added, are patentable over the cited art in the parent application including U.S. Patent No. 6,006,161 issued to Katou.

In addition, applicant brings to the Examiner's attention the references listed on the attached Form PTO-1449 (12 pages). Pursuant to 37 C.F.R. 1.98(d), copies of these references are not enclosed as they were previously cited by or transmitted to the U.S. Patent and Trademark Office in the parent application identified above. It is respectfully requested that the listed references be made of record in the present application.

Respectfully,

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By



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Enclosures

CENTRALIZED CONTROL AND
MANAGEMENT SYSTEM FOR AUTOMOBILES

This application is a continuation of application Serial No. 08/904,855, filed on August 1, 1997.
Statement of Related Applications

The present application is related to ~~co-pending,~~
5 commonly assigned U.S. Patent ~~Application Serial No. 6,009,355~~
~~08/789,934, entitled "Multimedia Information and Control~~
~~System for Automobiles."~~

Field of the Invention

10 The invention relates generally to control and
management systems and, more particularly, to a system for
use in an automobile which facilitates the user's control
and management of various vehicle functions.

Background of the Invention

15 The concept of an automated highway system (AHS)
has been fervently pursued. Although the interpretation of
the AHS concept varies from one person to another, people
implementing the concept are incorporating more and more
technology into an automobile to improve its operations,
better its safety measures, and add conveniences to the
20 vehicle user.

A prevalent interpretation of the AHS concept is
hands-free driving. To that end, magnets have been buried
along an experimental automated highway, and automobiles
have been equipped with magnetometers to sense the magnets
25 to guide the moving vehicles, thereby obviating manual
steering. In another approach, an automobile is equipped
with a video system in which cameras monitor different
segments of the road ahead and feed images to on-board
computers that control steering, acceleration and braking of
30 the vehicle.

detected by processor 103, the user is elicited for information concerning the destination, any intermediate stops, etc. Such elicitation is realized by posing questions on display 205 and/or by uttering those questions using a synthesized voice through an audio output. The user then provides verbal responses thereto through an audio input. Relying on standard speech recognition circuitry in system 100, navigation system 329 recognizes and registers the responses. Using stored map information, system 329 then provides on display 205 a suggested route leading to the destination. Furthermore, based on the knowledge of the vehicle's instantaneous speeds and directions, system 329 is capable of verbally and visually directing the user to the destination.

Because of the limited capacity of the storage for the map information or because the map information needs to be updated from time to time, it will be appreciated that system 329 would instead obtain the necessary, latest map information from an on-line service through a cellular or wireless connection.

In addition to directing the user to a given destination, system 329 through processor 103 cooperates with weather system 332 and traffic system 336 to be described. In accordance with an aspect of the invention, systems 332 and 336 jointly ^{provide} ~~provides~~ on display 205 updates regarding traffic ^{congestions} ~~congestion~~, weather conditions, hazards, highway warnings along the route suggested by system 329.

Fig. 6 illustrates one such navigation screen on display 205. On this screen, indicator 450 marks the current position of the vehicle. The suggested route (shown in boldface) by navigation system 329 is numerically denoted 453. Traffic indicator 455 is provided by system 336 to

complete stop, automatic parking routine 500 stored in memory 107 is invoked. When instructed by this routine, which is depicted in Fig. 9, processor 103 causes display 205 to show thereon the positions of the surrounding objects relative to the subject vehicle, as indicated at step 543.

At this point, the user may touch the screen of display 205 to define a parking space into which the vehicle is to be parked. In order to carry out parallel parking effectively, this parking space needs to be reasonably suitable for the vehicle to be maneuvered into. Processor 103 at step 547 computes the coordinates defining the selected parking space. Knowing the respective coordinates of the subject vehicle, the surrounding objects and the parking space, processor 103 at step 551 determines the instants at which and extents to which the vehicle is to be accelerated and decelerated in the ~~cause~~^{course} of the parking, and at step 553 the instants at which and extents to which the steering wheel is to be turned and returned. At step 555, processor 103 causes a computer simulation to be performed using the speed and steering parameters just determined to verify that the automatic parking is feasible, without running into any surrounding objects. At that point, the user may depress ANIMATION key 219j to view on display 205 the simulation in which the subject vehicle moves into the user defined parking space in an animated fashion. At step 559 processor 103 determines whether the vehicle can be properly parked under the above conditions. If processor 103 determines that the automatic parking is unrealizable, processor 103 informs the user of same, as indicated at step 563. In response, the user needs to select another parking space or may attempt to park the vehicle manually.

Otherwise if processor 103 determines that the

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